METHOD OF USING A MASK PROGRAMMED KEY TO SECURELY CONFIGURE A FIELD PROGRAMMABLE GATE ARRAY

ABSTRACT OF THE DISCLOSURE

A field programmable gate array has security configuration features to prevent monitoring of the configuration data for the field programmable gate array. The configuration data is encrypted by a security circuit of the field programmable gate array using a security key. This encrypted configuration data is stored in an external nonvolatile memory. To configure the field programmable gate array, the encrypted configuration data is decrypted by the security circuit of the field programmable gate array using the security key stored in the artwork of the field programmable gate array. The secret key consists of a number of bits of key information that are embedded within the photomasks used in manufacture the FPGA chip.